

JONATHAN H. COHEN
INITIATING COVERAGE OF INTERNET-RELATED COMPANIES, Part 1

Opinion:

- * We believe that the market for Internet software and services will continue to grow at a tremendous rate over the next several years, and that a great many companies stand to benefit significantly from that growth.
- * Our overriding concern is that the equity market has failed to differentiate between the (extremely large) overall market opportunity discussed here, and the various business opportunities available to individual companies.
- * We believe that the single-company/total control of the desktop model, which is so easily extrapolated from Microsoft's control of the PC operating system, must be dismissed with regard to the Internet.
- * Given the inclusion of Web browser functionality in a wide range of other products (including Windows 95), we question the long-term viability of stand-alone browser software.
- * We have seen that content providers are beginning to more efficiently (aggressively) seek to extract value from their products. We believe that the balance of power between those content providers and the online service companies currently hangs in delicate balance.
- * We believe that companies such as MCI, AT&T and IBM (and others), may view Internet access per se as only a small (and perhaps not especially profitable) component of the Internet/online services segment. In that environment, we have difficulty allocating market capitalizations to dedicated Internet access companies (which we regard as essentially value-added resellers of bandwidth) on any basis except some multiple of network replacement cost.

WHAT IS THE INTERNET?

The Internet is a global network of computer networks. The system was conceived roughly 25 years ago by the U.S. Government, and has recently become the focus of enormous interest among the general population.

The defining characteristic of the Internet is its lack of central control. That lack of control, while critically important to the network's growth, has historically limited its appeal to those who had gained the required (and significant) expertise necessary to navigate the system. Very recently, the necessity of that expertise has been replaced by a range of products which provide users with very much more accessible interfaces. In order to support truly mass-market Internet activity, the network will need to continue to become more accessible to non-technically oriented consumers. That trend will be assisted by the continued (and

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accelerating) development of dedicated software tools and systems. We believe that the market for those products will be considerable, and that there exists a significant business opportunity for the (many) companies involved. Our overriding concern is that the equity market has failed to differentiate between the (extremely large) overall market opportunity discussed here, and the various business opportunities available to individual companies.

THE WORLD WIDE WEB

The World Wide Web (the Web) is a standards-based construct within the Internet which enables information to be accessed very much more easily. The system is supported by a body of standards which have allowed the indexing and linking of information, and for the independent creation of Web Pages graphical, billboard-like gateways to additional information.


Web usage is growing geometrically, and is currently fueling much of the overall growth in Internet traffic.

As with the Internet itself, the Web is not privately owned. As such, creating a method for deriving profit from the Web has required both considerable effort and imagination. Several companies have sought to create businesses from helping users to navigate the Web.

THE INVESTMENT OUTLOOK: AN ATTEMPT AT PERSPECTIVE

Over the past two years, perhaps the single most carefully examined segment within the technology sector has been online communications and services. While the volume of analysis has been enormous, it has been made very much more difficult by the changing nature of the technology involved, and by the shifting preferences of online consumers. We believe that there exist significant unanswered (and unanswerable) questions regarding the paradigm for online communication and commerce. It appears that the consumer remains wholly (and appropriately) uncommitted to any specific format. We believe that the relationship between the current equity market valuations of most companies within this sector and any reasonable assessment of the net present value of their future cash flows (discounted to the present at a rate which appropriately reflects the risk profile of this industry) is a tenuous one.

As recently as 18 months ago, U.S. online access companies were committed to a strategy in which the Internet represented a competitive threat. The thinking was that Internet activity would pose a serious challenge to the dedicated service providers, and that those providers should strengthen their proprietary products to compete. The exponential growth of the Internet has rendered those strategies obsolete; every significant online service provider now views themselves both a content publisher and as a value-added gateway to the Internet (with the emphasis increasingly on Internet access). We expect that the continued growth of Internet activity will provide the online service companies with a series of ongoing challenges to their business models.



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We would here reiterate our core thesis: Unlike the distribution mechanisms for previous communications technologies, THE INTERNET IS NOT A SYSTEM THAT IS OWNED. While each specific piece of hardware belongs to some person or group, the protocols and standards (and most of the content) which can be said to comprise the Internet are essentially public domain. As such, deriving profitability from Internet participation may require not only "better performance, customer support and content", but it may also require an operating model which presupposes operating that service at a loss, while generating profitability from the derivative sources mentioned above.

Regardless of format, we believe that access will continue to get cheaper and that content will continue to become more valuable. Currently, and even after years of ongoing improvement, communicating through the Internet remains generally difficult for non-technically oriented consumers. That difficulty is rapidly being resolved, reducing the need for specialized software and/or support at the end-user level. We believe that that trend will continue, and that the longer-term value of online access (separate from any proprietary content) must be assessed with that in mind.

THE VALUE OF PROPRIETARY CONTENT AND THE COMING DIFFICULTY IN OBTAINING IT

Not surprisingly, there exists an enormously strong correlation between the value of online information and the difficulty in obtaining it on a proprietary basis. As recently as two years ago, much of the information moving over the dedicated online service providers (AOL, CompuServe and Prodigy) was indeed wholly proprietary. It was also difficult to get at, not usually worth the bother, and generally not very useful to the majority of the population. The current model is exactly reversed; there is now a wealth of relatively easy to access, hugely useful information available online. At the same time, it is becoming clear that the creators and owners of that information are eager to realize the greatest value from its online distribution.

Online service providers pay for content. While the terms of those payments are typically very difficult to obtain, it seems clear that the balance of power is shifting away from the online distributors and towards the content providers. As that trend continues, it seems reasonable to assume that either:

1. Content becomes almost wholly non-access-provider specific (as content providers are able to realize the greatest value for their product through essentially unrestricted common access), or
2. That the above construct serves to bid up the price of content such that the cost structure for online service companies is significantly increased.

It may here be useful to note that the term "online content" can

effectively encompass the entire body of historical and prospective human cognitive output. As such, the notion of monopolizing that content seems somewhat presumptuous. Moreover, we believe that it may be difficult for online service providers to compete on the basis of their ownership of proprietary content, given that Internet propagation should continue to attract additional content at a geometric rate.

It seems likely that content providers will continue to seek the path of greatest return. We believe that those providers will seek out the dedicated online service companies only to the extent that they find that course economically desirable.

* NOTE: The information in this document has been obtained from sources we believe to be reliable, but we do not guarantee its accuracy or completeness. Smith Barney Inc., its affiliated companies, or its shareholders may have a position in the securities discussed herein. Additional information is available upon request.

JONATHAN H. COHEN
INITIATING COVERAGE OF INTERNET-RELATED COMPANIES, Part 2

Opinion:

THE BATTLE FOR INTERNET CONTROL: A CHALLENGE AT THE OPERATING SYSTEM LEVEL

There is currently heated debate over who will ultimately gain control of the Internet-connected desktop. That debate revolves around the probability that Microsoft, Netscape or someone else will become established as the provider of the "operating system" for Internet activity. We believe that the likelihood of any one enterprise gaining the sort of dominance within the Internet that Microsoft gained within the PC software segment is very small. We note that the Internet is a far more open system than the PC, and that compatibility (within the confines of certain broad standards) is virtually assured.

With Microsoft's implementation of a proprietary online service (The Microsoft Network or MSN), and with that company's inclusion of an Internet browser embedded in their operating system, we are left to question the long-term viability of stand-alone Internet browser software.

While stand-alone browser products may survive the incorporation of that functionality into the operating system, we are unaware of any historic precedent for that conclusion; we note that virtually every PC-based functionality has become a de facto component of the operating system after being so included by Microsoft. Moreover, we believe that the nature of browser functionality is such that it will continue to be included (at no incremental cost to the consumer) in products and services which rely upon the Internet for their distribution.

The competitive threat posed by MSN extends directly to the online service providers; the immediate availability of a single online environment included with every PC shipped will represent a powerful (and perhaps overwhelming) force. We regard the existence and further development of MSN as perhaps the single most critical near-term competitive issue facing the online service companies. In that assessment we are not alone, according to Steve Case (America Onlines president and CEO), "The tens of millions of existing computer owners who are expected to upgrade to Windows 95 won't be offered choices built into their operating system other than MSN. The operating system for 85% of all personal computers is about to become an exclusionary marketing and distribution tool." (Source: Interview with Steve Case, The New York Times, November 5, 1995).

Along with virtually every other online company, AOL is currently seeking relief from the U.S. Department of Justice's Antitrust Division. The outcome of any investigation is currently far from certain. What seems clear is that every online service company stands to be materially and adversely effected by Microsoft's participation.

It may be useful to reiterate that online service is essentially a software-implemented functionality. While it is reasonable to draw some comparison between the online access providers (e.g., America Online) and

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companies which provide navigational software (e.g. Netscape), we do not believe that that comparison should be made too conclusively.

Just as IBM-compatible personal computers were originally supplied with an operating system which did not totally fulfill the requirements of its users (spurring the development of the software utility industry), so too will a large number of hardware and software companies now contribute to the quality of the online/Internet interface. Going forward, what most of those companies want to do has very little to do with selling interfaces, and has a great deal to do with selling products and services to online consumers.

Conclusion: With the emergence of an essentially two-tiered structure for online communication (proprietary services and direct Internet access), and with the no-cost availability of a variety of robust browsers (and prospectively, servers), we believe that the market for stand-alone navigation software may be limited.

THE VALUE OF BANDWIDTH: THE POP COMPANIES

To support exponential increases in online traffic (both Internet and non-Internet based), additional pieces of communications infrastructure have been and will continue to be required. Because the growth of online traffic is a recent (and a not very well-anticipated) event, the demand made upon existing online infrastructure is considerable. Because online infrastructure is perceived as having considerable scarcity value (there is not currently enough of it), companies which possess that infrastructure are considered to be worth a great deal.

In describing the value of their network, an online POP (point of presence) company recently told us that "everything sums to time". In other words, given that significant resources are currently being allocated to build structures similar to and much larger than their network, that company views its competitive advantage and the value of its business primarily in terms of its lead time. We believe that an appropriate valuation methodology can be constructed on the basis of network system replacement cost. On almost any reasonable multiple applied to that replacement cost, we are left to conclude that current market values applied to Internet access companies are likely unsustainable.

THE ONLINE NAVIGATION COMPANIES: A VALUATION METHODOLOGY

In the very short period since Web browser companies have accessed the public equity market, the two leading public companies (Netscape and Spyglass) have attracted enormous interest. As investor interest in Internet-related activity has surged, the market capitalizations of both companies have increased by large multiples of their original IPO values.

At least in terms of equity market valuations, we do not believe that browser technology is in any real way comparable to operating system

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technology. We note that the Web (as with the whole of the Internet) is essentially an open system. As such, the probability of capturing some significant portion of that market on a proprietary basis (as with Microsoft's DOS/Windows) and exploiting the advantages of a technology-based monopoly seems limited.

Our methodology is as follows:

1. We have allotted both online navigation companies valuations based on our estimates for calendar 1997 operating revenues. Despite prospectively very high rates of growth for this segment, we believe that any valuation methodology which strays too far from visible operating results is likely flawed.

2. We have defined both Netscape and Spyglass as software companies (and only as software companies); for the time being, we have chosen not to embrace any single company as "the controller of the Internet". While our definition should not come as a revelation to those who have used these companies' products, we believe it underscores the importance of basing our valuation methodology on reasonably arrived-at operating prospects.

3. Given the rate of change within the online market, we are disinclined to speculate on details of the competitive landscape much beyond two years out. We have chosen to allot both Netscape and Spyglass equity valuations equal to 10.0x our estimates for calendar 1997 revenues for each company. We regard that multiple as sufficiently generous to preclude any objection on that basis. On a combined basis, we estimate that Netscape and Spyglass will together generate revenues of approximately \$241 million during calendar 1997. We have projected that the two companies will generate combined net income of approximately \$36.8 million during that same period. Assuming we were to allocate both companies a 30.0 multiple on calendar 2000 earnings, and that we were to discount the resulting valuations to the present at a 25.0% cost of capital, and further assuming roughly comparable operating margins between calendar year 1997 and 2000, we are left with the requirement that the companies achieve combined revenues of approximately \$1.61 billion by the year 2000 (representing an 85% compounded revenue growth rate between 1995 and 2000) in order to replicate the combined valuation suggested by our methodology. We note that on a market capitalization-weighted basis, the AMEX Internet Index is currently selling at approximately 4.7x trailing 12-month revenues.

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JONATHAN H. COHEN
INITIATING COVERAGE OF AMERICA ONLINE, Part 1

Ticker: AMER		AMERICA ONLINE, INC.			Current	Prior
Price: 44.62		52 Wk Range: 45.00 - 10.00			Rank: 3-S	
Pricing: 12/06/95		(Release Date: 12/07/95)			Target Price: N/A	
Fiscal Year:	Jun	1 Qtr	2 Qtr	3 Qtr	4 Qtr	Year
Actual	1994 EPS	\$0.02A	\$0.02A	\$0.03A	\$0.04A	\$0.10A
Previous	1995 EPS	\$0.04A	\$0.05A	\$0.06A	\$0.08A	\$0.23A
Current	1995 EPS	\$0.04A	\$0.05A	\$0.06A	\$0.08A	\$0.23A
Previous	1996 EPS	\$0.08A	\$N/A	\$N/A	\$N/A	\$N/A
Current	1996 EPS	\$0.08A	\$0.09E	\$0.10E	\$0.11E	\$0.37E
Previous	1997 EPS	\$N/A	\$N/A	\$N/A	\$N/A	\$N/A
Current	1997 EPS	\$0.12E	\$0.14E	\$0.17E	\$0.19E	\$0.62E

Price (As of 12/06): \$44.62	Revenue (1995): \$358.5 mil
Return on Equity(94): 2.6%	Proj. 5yr EPS Grth.: N/A%
Shares Outstanding: 80.3 mil	Dividend, Yield: \$N/A, N/A%
Mkt. Capitalization: \$3582.99 mil	P/E 95,96: 194.0 X; 120.6 X
Current Book Value: \$2.85	Comments:
LT Debt-to-Capital: 25.3%	Hedge Clause(s):

Opinion:

Thesis: With just over 4.0 million subscribers, America Online (AOL) is currently the preferred online service worldwide. The company has prospered by providing online consumers with a superior and easy-to-use product at a competitive price. We have been consistently impressed with the quality of the AOL interface and with management's strategic implementation to date.

While we believe that AOL is well-positioned to maintain their role of leadership within the dedicated online service segment as that market becomes very much larger, we also believe that the market has failed to apply an appropriate discount rate (one which adequately accounts for the significant risk to the company's franchise) to the future value of that opportunity. The online industry is in its infancy, and is in many ways a completely different business than it was as recently as 18 months ago. We believe not only that online segment growth will continue to accelerate, but also that that growth will bring with it changes which are, at present, imponderable. As such, we believe that to focus primarily on what have been termed the metrics of this company (number of subscribers, retention rates, use per month, etc.) is to lose sight of the drivers of this segment.

While we expect that AOL's subscriber growth should continue unabated over

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the next few years, we believe that the company will remain highly vulnerable to any slowdown in that growth; AOL's near-term business model is predicated on the continued addition of new subscribers in high volumes. That said, the components that should define competitive advantage (access, content and organization) are readily identifiable. AOL is currently moving to capture those resources and to make them proprietary; we believe that the extent to which they are successful will define their position going forward.

THE AOL PRICING MODEL

AOL's pricing model is designed to appeal to mass-market online consumers. The company offers up to five hours of use per month at a flat rate of \$9.95. Customers who exceed that time are billed at the rate of \$2.95 per additional hour.

As seen below, AOL's pricing model appears to mirror the requirements of their customer base. For that fee, AOL customers receive both Internet access and AOL's proprietary content. Alternative pricing structures offered by Internet access companies (and now by AOL themselves) generally provide unlimited Internet access for a flat fee of \$19.95 per month.

The mathematics here are fairly straightforward; consumers desiring Internet access only are better served by an unlimited access service only if their average usage exceeds 8.4 hours monthly. AOL users who are not generally interested in the company's proprietary content (and we believe such users are currently in the minority), will be better served by moving to an unlimited access provider only if their average paid usage exceeds 3.4 hours monthly. While AOL's average paid usage per member is increasing (from 1.86 hours in FY95 to 2.59 hours in FY96 and 2.90 hours during the fourth quarter of FY96), average monthly use trends indicate that the significant majority of AOL users will continue to be better off under the company's current pricing program.

To a significant degree, AOL views the online services market as split into two groups:

- 1) Their core subscribers with
 - a) usage rates of less than 5 hours monthly, and
 - b) a relatively low level of Internet access
- 2) Heavy users with
 - a) usage rates of more than 10 hours monthly, and
 - b) a relatively high level of Internet access

In order to capture a more significant portion of the second group, AOL recently introduced a service specifically targeted at the Internet access market: their Global Network Navigator (GNN) system. According to Steve Case, "As the market for online services continues to expand rapidly, some market segmentation is beginning to emerge. A growing number of people are beginning to seek an Internet-only solution online, and a growing number of publishers are interested in enhancing their presence on the Web

through targeted advertising opportunities."

We believe that the frequently-raised issue of price structure competition between the online service companies and the Internet access providers is essentially irrelevant. We would, however, look at the possibility for margin compression as higher-volume users migrate to fixed price-structure services (specifically GNN). As discussed above, we are additionally concerned about the possibility for a zero-cost Internet access pricing paradigm. That model, should it develop, would likely pose a significant problem for AOL.

DISCUSSION OF AOL SUBSCRIBER BASE: TIME DOMAIN

We are specifically interested in the mathematics involved in the growth of AOL's subscriber base. AOL defines a subscriber as an account which has provided the company with billing information (and thus includes free trial memberships). AOL defines the termination of an account at that moment when a subscriber informs the company that they wish to cancel their account. As defined by the company, AOL's current population of subscribers current stands at just over 4.0 million.

Our issue here is not that the company is in some way misrepresenting their subscriber count (indeed AOL has reported that count according to the same definition since they began operations), but rather that the composition of that figure has changed significantly over time. Because of the company's almost logarithmic growth to date, we are left with an average subscriber life period which can apply to only a small fraction of the systems' members. The implication of the mathematics are relatively straightforward; there is a multiplier effect here. To the extent that AOL's rate of subscriber growth and their average membership life continue to increase strongly, these formulas will continue to underrepresent the value of the company's membership base. The reverse, however, is also true. We believe that the widespread reliance upon this statistical representation could quickly and negatively effect the value of AOL's shares as and when their rate of membership growth slows. While we believe that membership growth will continue over the intermediate-term (we are generally in agreement with the company's rough estimate for about 10 million members in two years), both we and the company recognize that sustaining AOL's current growth rate over the longer term is impossible.

DISCUSSION OF AOL SUBSCRIBER BASE: SINGLE- VS. MULTI-CONTENT DATA STREAM MEDIUMS

The comparison between a leading online service provider such as AOL and the television networks is an attractive one. It is, however, one which we believe may be difficult to sustain. AOL has historically compared their system to a single-content format such as a newspaper or a network, and has framed the discussion of the size of their subscriber base within that context. The problem is that online services are not single-content formats; multiple data streams can be accessed during the same session. While 4.0 million people may have access to AOL, it seems likely that only

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a small fraction of those people are exposed to any specific part of the network during a given online session. Unlike information contained in a newspaper or a television program (which tend to be consumed on a linear, single-tasking basis), online data streams can be consumed non-linearly. The issue appears to be one of measurement; a person is either reading a newspaper or not reading a newspaper, but they could be accessing any one of an almost infinite number of data streams online. As such, the subscriber base comparison between online service providers and cable television companies seems to be a fair one (cable subscribers have access to multiple content sources but will not necessarily avail themselves of all of them). The comparison between subscriber counts for online providers and individual off-line data streams (such as ABC or the Washington Post) is probably not useful.

AOL is strongly (and appropriately) committed to the significant expansion of their proprietary content base. The company has actively cultivated content providers (to the extent of providing early-stage funding), and will continue to do so on an increasingly aggressive basis. While we believe that AOL's development of proprietary content is their best (and only rational) strategy, we can envision two unanticipated consequences:

1. To the extent that each incremental information stream must compete with AOL's existing content base, the issue of content cannibalization must be addressed; any user is only able to access a single data stream during any moment in time (or a finite body of content during any time period).
2. In that sense at least, and in terms of user exposure to any specific content, we expect that AOL will actually begin to cancel that content which fails to attract a sufficiently large audience.

Based upon conversations with management, we believe that AOL is aggressively seeking to enrich the quality of the proprietary information on their network such that they are able to maintain and expand the number of users who rely specifically on their service. The problem ultimately becomes competition among content providers for mindshare, and the resulting scarcity of high-value AOL real estate (as measured in terms of exposure rather than bandwidth). We believe that there may exist a mechanical conflict between maintaining a relatively easy-to-use online interface (with relatively simple pathways), and providing enough exposure to competing content providers.

The primary offset to the above issues would come as subscribers respond to greater content densities by increasing the time they allot to the system. With an average of about 6.9 hours spent per subscriber per month (against many times that devoted to watching television), there very clearly exists significant room for future hours per subscriber growth.

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JONATHAN H. COHEN
COMMENTS ON RECENT INTERNET ACTIVITY

Opinion:

With regard to Microsoft's discussion of their Internet strategy yesterday, we believe that that company's adoption of common and open standards for Internet communication can only accelerate the development of that market. The company's announcement was consistent with our recent comments in terms of the propagation of open-standards within this medium.

With specific regard to Netscape, we mentioned yesterday that we believed that first browser and ultimately server functionality would begin to see commoditization. Microsoft announced yesterday that they will incorporate their Internet Information Server (which had previously been code named Gibraltar) into the server version of Windows NT at no charge. Yesterday morning we discussed the possibility of Server software being made available very inexpensively, and yesterday afternoon Microsoft announced that the price may zero. We continue to believe that Netscape will have difficulty charging an economically compelling price in this environment.

With regard to America Online, Microsoft's announcement that they will abandon the Microsoft Network as a proprietary online service, and that they will instead reposition that product primarily as an Internet gateway service has two separate implications;

1) It does remove a competitor from the proprietary online service market, although Microsoft had not been much of a force in that segment (having only recently launched MSN)

2) It reinforces our belief that the proprietary online service companies may face a serious competitive threat as subscribers move to dedicated Internet access. America Online currently generates about 15% of their total usage hours from Internet use. Our level of concern would likely become greater if that level were to move to the 20% to 25% range.

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